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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,861	06/25/2001	Randy C.H. Chang	VIS86-118CB	4479

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EXAMINER

MACARTHUR, SYLVIA

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Applicant(s)

09/891,861

CHANG, RANDY C.H.

Examiner

Sylvia R MacArthur

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hempel, Jr. (US 5,895,270) in view of Doan et al (US 6,004,196).

Hempel, Jr. teaches an improved CMP apparatus 30 comprising a plurality of semiconductor devices including a plurality of carrier devices 14 (comprising nesting means). A plurality of polishing pad mechanisms 12 are associated with each carrier device so that each of the plurality of polishing pad 18 mechanisms separately and approximately simultaneously polishes one of the plurality of polishing pad mechanisms. The polishing pad mechanism is configured to rotate not only about the axis of spindle 16, but also in a horizontal and vertical direction.

Hempel, Jr. fails to teach a coaxial polishing dressing head assembly.

Regarding claims 1 and 8-10: Doan et al teaches an in-situ (pad conditioner 50 for a polishing machine. Doan that the body 60 (annular dressing ring) of the conditioner is slidably attached (removably attached) to the wafer carrier 30 (lower nesting surface), see col.4 lines 34 and 35. The advantages of the apparatus by Doan are that it eliminates the need for a separate dressing station, increases machine throughput, and improves polishing uniformity and process stability.

Art Unit: 1763

Regarding claim 2: Doan cites in col.5 lines 58-63 that the polishing surface 42 surrounding the wafer is conditioned while the wafer 12 is polished.

Regarding claim 4: Doan illustrates in Figs. 2-5 that the dressing ring is an annular support member with suitable dressing material bonded thereto.

*The motivation to exchange the pad-conditioner for the conventional carrier device of Hempel, Jr. is to allow for conditioning a pad in CMP without stopping the polishing process as discussed in the abstract of Aiyer.*

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the polishing system of Hempel, Jr. with the apparatus of Doan et al by providing the coaxial polishing dressing head assembly including the features described above.

Regarding claim 3: Hempel, Jr teaches that slurry is directed to the polishing and contact the substrate in col. 6 lines 63-67.

3. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hempel, Jr. (USP 5,895,270) in view of Doan et al, as applied in claims 1-4 and 8-11 in further view of Shimizu et al (USP 6,176,762).

The teachings of Hempel, Jr. and Doan were discussed above.

Neither teaches a dresser ring comprising ceramic.

Shimizu teaches a dressing plate made of sintered porous alumina (ceramic). The plate is then wax-bonded to an impregnated sealed layer.

Art Unit: 1763

Shimizu teaches that in manufacturing a ceramic dresser a binder is used to reinforce the structure as well as adhere other layers, see column 3 lines 2-10.

Thus, it would have been obvious at the time of the claimed invention to manufacture the dressing ring of Doan out of ceramic and utilize a binder *in the construction as is taught by Shimizu in order to reinforce the structure as well as adhere other layers.*

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hempel, Jr., Aiyer, and Shimizu et al (USP 6,176,762), as applied in claims 5 and 7 above, as evidenced by Erickson (USP 6,080,216).

The teachings of Hempel, Jr., Aiyer, and Shimizu were discussed above. Neither teaches a glass frit binder.

*The use of glass frit binder is a well known suitable binder in the manufacture of ceramic articles as evidenced by Erickson.*

Thus, it would have been obvious for one of ordinary skill in the art to utilize glass frit as it is an art recognized suitable means of binding ceramic articles like that produced from the combined teachings of Hempel, Jr., Aiyer, and Shimizu.

#### ***Response to Arguments***

5. Applicant's arguments filed February 11, 2003 have been fully considered but they are not persuasive. Applicant argues about the merits of Hempel, Jr. and Aiyer individually. In response to applicant's arguments against these references individually, one cannot show

Art Unit: 1763

nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding the argument against the use of Shimizu, applicant fails to note the crux of the rejection. Examiner relied upon Shimizu merely as prior art that suggests the use of ceramic and a binder as reinforcement as materials of construction. Furthermore, Shimizu does teach a ceramic dresser. The intended use of the dresser is not given patentable weight.

Similarly, the teachings of Erickson were relied upon to suggest the use of a glass frit binder. The motivations to combine the references were also clearly defined and have been italicized for emphasis.

### *Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 703-306-5690. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m.

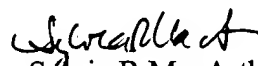
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9630 for regular communications and 703-872-9630 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 09/891,861

Page 6

Art Unit: 1763

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

June 13, 2003